

**EFFECT OF REFLEX ZONE STIMULATION ON LACTATION
AMONG POST-CAESAREAN MOTHERS AT
SRI RAMAKRISHNA HOSPITAL,
COIMBATORE**

REG. No. 301220052

A Dissertation Submitted to
The TamilNadu Dr. M. G. R. Medical University,
Chennai-32.

In Partial Fulfillment of the Requirement for the
Award of the Degree of

MASTER OF SCIENCE IN NURSING

2014

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MASTER OF SCIENCE IN NURSING
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LEVEL OF LACTATION

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ABSTRACT

An interventional study was conducted to assess the effect of reflex zone stimulation on lactation among post caesarean mothers at Sri Ramakrishna Hospital, Coimbatore. Quasi experimental pre test post test with control group design was adopted and purposive sample of 26 mothers who were in the first post-operative day and out of the effect of anaesthesia were included for the study. Informed consent was obtained from the selected mothers after brief explanation of the study and intervention. A pre-test was done using the LATCH breast feeding assessment scale. Reflex zone stimulation was administered to the mothers by the researcher, for 10 minutes; 5 minutes on each feet and once daily for 3 days. A post test was conducted using the same tool to find the effect of reflex zone stimulation on lactation while breast feeding. The findings of the study reveal that application of reflex zone stimulation is effective in initiation of breast milk secretion and promotion of breastfeeding.

Effect of Reflex Zone Stimulation on Lactation among Post Caesarean Mothers at Sri Ramakrishna Hospital, Coimbatore

Motherhood is a distinct bio-psychosocial process that transforms and broadens the role of a woman into that of a mother.

The great concern of the mother, the medical and nursing specialists are for the successful delivery of the child. Since the dawn of time, labour and child birth through the vaginal passage have been inevitable consequences of pregnancy which is a journey through life. There was no alternative to vaginal birth years back. In this new millennium, women do have an alternative, one that has been provided by the wonders of modern technology - caesarean section.

A caesarean section is a surgical procedure in which incisions are made through a mother's abdomen and uterus to deliver one or more babies. The most common problem and complaint experienced by the mothers undergoing surgery is delayed initiation of lactation.

The word lactation is derived from a latin word lactan which means to produce and supply breast milk (to breast feed) to a baby. Lactation is under the control of numerous exocrine glands particularly the pituitary hormones prolactin and oxytocin. It is influenced by the sucking process and by maternal emotions. Colostrum is the creamy yellow substance which is rich in nutrients for the baby and also has maternal antibodies which protects the newborn from infections. So lactation is very necessary for the newborn baby and it promotes the health of the baby.

"It's all in the latch." Lactation consultants preach about a good latch at the breast. The golden standard for proof of milk transfer from the breast to the infant is

audible swallowing. In the first few days of life, infants often suck six or seven times before swallowing the thick colostrum. By the time the infant is 3 to 5 days old, a mother's milk has "come in," and many swallows may be heard following each letdown (Biancusso, 1999; Huggins, 1999). This is evidenced by bursts of swallowing, pauses, and more bursts of swallowing. When milk supply increases, about 48 to 72 hours after delivery, breasts may become firm and a little tender. Fullness in breasts occurs naturally from an increase in blood flow. This prepares breasts for increased milk production. Feeding the baby often will help keep breasts soft and prevent engorgement.

One of the method to initiate lactation is reflex zone stimulation which is the practice of applying pressure to the feet and hands utilizing specific thumb, finger and hand techniques without the use of oil and cream or lotions based on a system of zones and reflex areas that reflect an image of the body on the feet and hands with a premise that such works effects a physical change in the body.

Reflexology is an effective tool in relaxing mothers, allowing a more nurtured body, mind and spirit, which in turn helps in establishing and maintaining lactation. Additionally, therapeutic reflexologies and postpartum, masseuse Laura Thomas cites a study in which milk volume increased by 86 percent for participants who received 10 therapeutic reflexology treatments. Reflexology benefits in increasing milk production, mother's relaxation and promotes lactation which is being identified by obtaining good latch while breast feeding.

1.1. NEED FOR THE STUDY

Caesarean section is reported to be one of the most common surgical operations in field of obstetrics and gynaecology. During the last decade there has been 2-3 fold rise in the incidence. World Health Statistics in 2012 reported that 9% of all the birth in India were by caesarean section. It was also reported that the caesarean rate in China was three times than that of India at 27%, and Sri Lanka accounted for 24%. Bangladesh too recorded caesarean rates higher than India at 13%, Bhutan recorded 12% and the Maldives 32%. Caesarean section rates are rising globally.

Breast feeding is a natural human activity. To have the full benefit of breastfeeding, the WHO recommended exclusive breastfeeding for at least six months of life and supplemented breastfeeding for at least one year. In 2007, the rate of breastfeeding at early postpartum was 75.0 % at 6 month of age was 43.0% and at 12 month was 22.2%. apparently, more than 50% of mother failed to breastfeed their baby adequately and thus face a risk of lactation failure due to stress, fatigue, anxiety, unfounded fears and also anesthesia, strong sedation, prolong labour, surgical intervention, placenta retention etc.(Edmond KM.et.al.,2000)

Breast milk is the natural first food for babies, it provides all the energy and nutrients that the infant needs for the first months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one-third during the second year of life. Breast milk promotes sensory and cognitive development, and protects the infant against infectious and chronic diseases. Exclusive breastfeeding reduces infant mortality due to common childhood

illnesses such as diarrhoea or pneumonia, and helps for a quicker recovery during illness.

A global risk assessment of deaths and years of life lost due to suboptimal breastfeeding among children in the developing countries revealed that attributable fractions for deaths due to diarrhoeal disease and lower respiratory tract infections are 55percent and 53percent, respectively, for the first six months of infancy, 20percent and 18percent for the second six months, and are 20percent for all-cause deaths in the second year of life. The authors concluded that globally, as many as 1.45 million lives (117 million years of life) are lost due to suboptimal breast-feeding in developing countries. The study suggested that initiation of breastfeeding within 1 hour could cut 22percent all neonatal mortality. It calls for support to all mothers during the first hour to ensure early initiation of breastfeeding. (International Lactation Consultation Association., 2011)

The percentage of neonatal deaths could be prevented by initiating breastfeeding in the first hour of life was 41.3 percent This is equivalent to preventing 22.3 percent of all neonatal deaths Similarly, initiating breastfeeding on the first day could have saved 30.2 percent of neonatal deaths from days 2. (International Lactation Consultation Association., 2011)

Sakha & Behbahan (2005) conducted a study on the effects of caesarean section on breastfeeding there was a significantly lower postpartum prolactin (PRL) level in the caesarean section group compared with vaginal delivery group during 6 - 24 hours in the daytime after delivery. The median time of breastfeeding initiation was 12 hours and 2 hours after birth for caesarean section and vaginal delivery groups

respectively. Caesarean section was an important hazard for a shorter duration of breastfeeding within one year after childbirth. Caesarean section is associated with significantly lower postpartum PRL, which is in line with the longer breastfeeding initiation and lower rate of successful breastfeeding. Necessary measures including promoting the secretion of postpartum PRL such as early contact, early sucking and analgesic method should be taken to improve the successful breastfeeding rate.

Laura Thomas (2007) found that mothers given reflexology after birth were able to breastfeed more quickly and with more satisfaction. In addition, reflexology helped avoid use of drugs in lactation that may be harmful to the baby and cause adverse side effects in the mother. Other studies show that the supply of milk is greater in women who received foot reflexology after birth. A study showed that reflex zone stimulation promotes milk flow and balances hormone production.

Reflex zone stimulation is an effective method for breast milk secretion. This method is useful for post caesarean mothers to prevent the use of drugs in lactation that may harm to the baby. The latch is correct when the infant is receiving colostrum or milk. The gold standard for proof of milk transfer from the breast to the infant is audible swallowing.

With the support of the above literature and by understanding the benefits of reflex zone stimulation, the researcher was interested to assess the effect of reflex zone stimulation on latching and promoting early breast feeding and newborn care among post caesarean mothers.

1.2. STATEMENT OF THE PROBLEM

EFFECT OF REFLEX ZONE STIMULATION ON LACTATION AMONG
POST CAESAREAN MOTHERS AT SRI RAMAKRISHNA HOSPITAL,
COIMBATORE

1.3. OBJECTIVES

1. Assess the level of lactation among post caesarean mothers.
2. Assess the level of lactation after reflex zone stimulation among post caesarean mothers.

1.4. OPERATIONAL DEFINITIONS

1.4.1. Effectiveness

It refers to the extent to which reflex zone stimulation (foot reflexology) brings changes in the level of lactation among post caesarean mothers as evidenced by the scores obtained on LATCH breast feeding assessment scale.

1.4.2. Reflex zone stimulation

It refers to the application of pressure on the toes of the feet using techniques like thumb walking and pressure circles. It is administered for a duration of 10 minutes each day for a period of 3 days among post caesarean mothers.

1.4.3. Lactation

It refers to the initiation of copious milk secretion which is assessed by the LATCH Breastfeeding Assessment scale consisting of Latch, Audible swallowing, Type of nipple, Comfort and hold .The total score ranges from 0 to 10.

1.4.4. Post caesarean mothers

The mothers who have delivered a full term healthy baby by caesarean section and have recovered from the anaesthetic effect in the post operative ward of the obstetrics and gynaecology department of Sri Ramakrishna Hospital.

1.5. CONCEPTUAL FRAMEWORK

Conceptual framework of this study is derived from Roy's adaptation Model formulated by Sister Calista Roy in 1964. The focus of this study is the adaptation of the individual to various stimuli, both from the environment and from within. An individual behaviour is based on input, control and feedback mechanism.

1.5.1. Input

It is the stimulus which comes from the environment or within the person. It includes the ability of the person to adapt to a condition easily. Each person's adaptive level is unique and is constantly changing. Here the researcher implements reflex zone stimulation after LSCS on lactation.

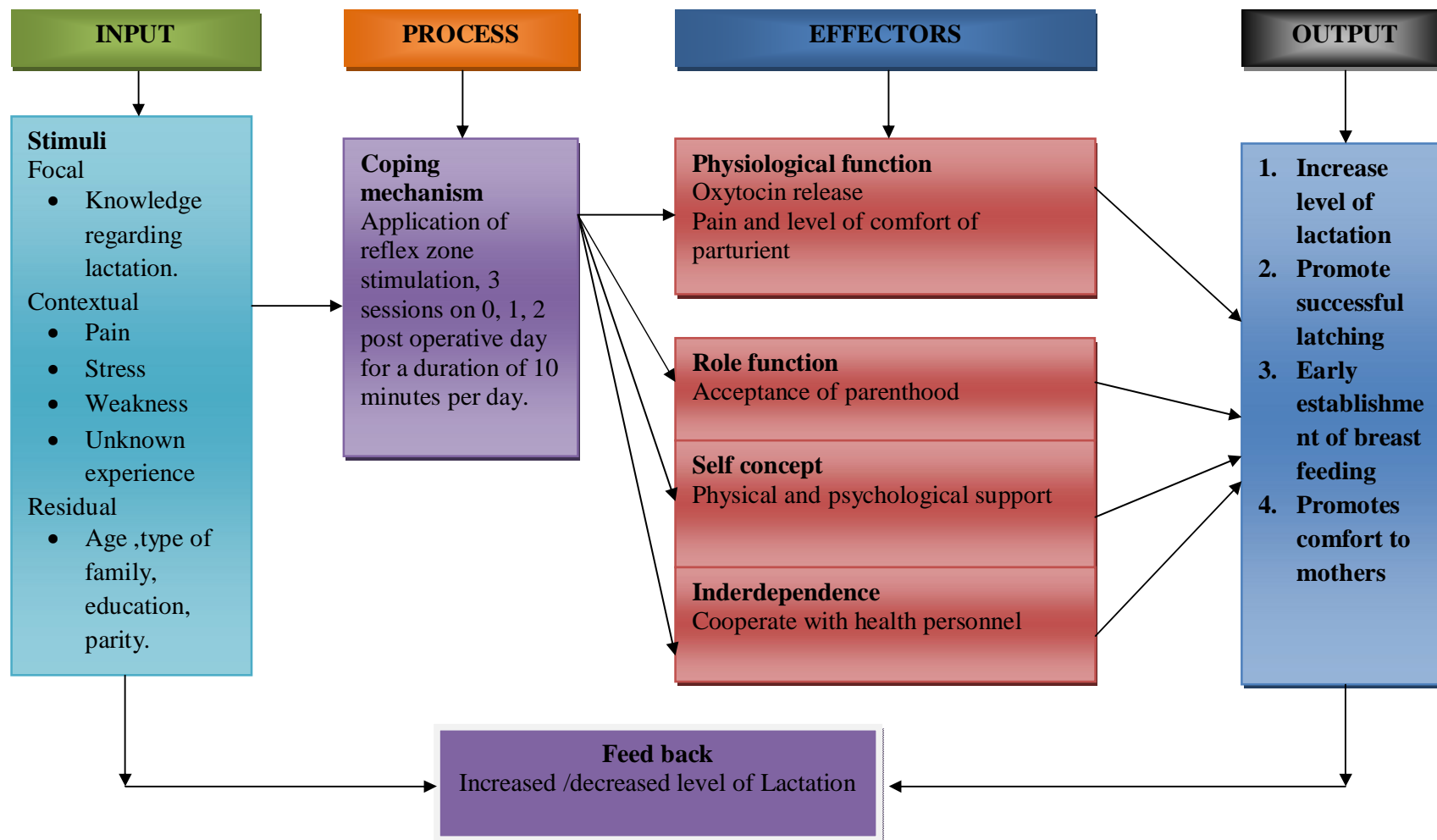
1.5.2. Throughput

Throughput makes use of control mechanisms used by a person for adaptation. The physiological responses, self concept and role function are involved in adaptation. It includes reflex zone stimulation, monitoring the physiological changes and progress in lactation by LATCH scores obtained before and after the intervention.

1.5.3. Output

Output is the outcome experienced by the mother in terms of breastfeeding. These are categorized as adaptive responses and ineffective responses. Effective adaptive response includes increased milk ejection and successful breast feeding evident by latch scores obtained in latch breastfeeding assessment scale. Ineffective responses are decreased milk ejection and failure in breastfeeding. These responses provide feedback for the system.

CONCEPTUAL FRAMEWORK BASED ON SISTER CALLISTA ROY'S ADAPTATION MODEL



1.6. PROJECTED OUTCOME

Reflex zone stimulation will have a positive effect on lactation among post caesarean mothers.

REVIEW OF LITERATURE

Review of literature is an extensive, systemic selection of potential sources of previous work acquainted with facts finding after securitization and location of reference to the problem under study. It is helpful in understanding and developing insight into the selected problem understanding and also asked to develop a conceptual framework for the study.

The literature review is sectioned under the following headings

1. Literature related to prevalence of failure on initiation of lactation among LSCS mothers.
2. Literature related to effectiveness of reflex zone stimulation among post natal mothers.
3. Literature related to effectiveness of reflex zone stimulation on initiation of lactation among LSCS mothers.

2.1. Literature related to prevalence of failure on initiation of lactation among post LSCS mothers.

Sakha and Behbahan (2005) conducted a study to determine factors affecting the onset time of lactation in vaginal and caesarean section deliveries with and without labour pain (elective). In this study 300 parturient mothers selected and were divided in three separate groups (each consisted of 100 cases) according to their delivery type [vaginal and caesarean section with and without pain (elective)], the needed information about filling of breasts and milk ejection was given to mothers before parturition, then a questionnaire was provided and offered to them, data

collected and statistical analysis carried out. The result revealed that any kind of stress including caesarean section may postpone milk ejection by hormonal inhibition for a few days after delivery. So to support breast feeding in our country, the rate of caesarean section must be diminished and vaginal delivery encouraged.

Wang, Zhou, Zhu & Gao et.al (2000) conducted a prospective observational study on the effects of caesarean section on breastfeeding. Six hundred and two [301 cases was caesarean section (caesarean section group) and 301 cases was vaginal delivery (vaginal delivery group)] nulliparas were interviewed face-to-face at ante partum and postpartum in an indication-matched prospective study. There was a significantly lower postpartum prolactin (PRL) level in the caesarean section group (8.48 nmol/L, 95% CI: 7.80 - 9.21 nmol/L) compared with vaginal delivery group (9.61 nmol/L, 95% CI: 8.99 - 10.26 nmol/L) during 6 - 24 hours in the daytime after delivery. The median time of breastfeeding initiation was 12 hours and 2 hours after birth for caesarean section and vaginal delivery groups respectively. Caesarean section was an important hazard for a shorter duration of breastfeeding (RR = 1.21; 95% CI: 1.10 - 1.33) within one year after childbirth. Caesarean section is associated with significantly lower postpartum PRL, which is in line with the longer breastfeeding initiation and lower rate of successful breastfeeding. Necessary measures including promoting the secretion of postpartum PRL such as early contact, early sucking and analgesic method should be taken to improve the successful breastfeeding rate.

Padua Brescia et.al (2012) conducted a study to investigate the effects of elective primary and elective repeat caesarean deliveries on lactation. Deliveries were classified as vaginal, elective caesarean (primary and repeat) or emergency caesarean.

A total of 2296 (24.7%) infants born by caesarean section (CS), 816 of which (35.5%) classified as primary elective CS and 796 (34.7%) as repeat elective CS, were studied. Moreover, 30.2% of the elective CS deliveries took place before 39 weeks. 6.9% of the vaginal delivery mothers, 8.3% of the emergency CS mothers, 18.6% of the elective CS mothers, 23.3% of the primary CS mothers and 13.9% of the repeat CS mothers were using infant formula feeding. The study concluded that these findings provide information about the risks of breastfeeding failure connected to elective CS delivery, particularly if primary and scheduled before 39 weeks of gestation.

Vestermarck, Hogdall, Birch, Plenov, Toftager-Larsen (2009) conducted a study on initiation and prevalence of breast feeding investigated in 370 singleton parturients and compared to the mode of delivery. Infants delivered by vacuum extraction or by caesarean section started suckling later, they were more often given formula prescription during the first 4 days, they were less often breast-fed during the night, and their mother's milk 'came in' later, but it did not affect the prevalence of breast-feeding after discharge. A sleepy infant, which was not very willing to suckle, was the most frequent nursing-problem mentioned by the mothers 4 days after delivery. Failure to start breast-feeding occurred in only 2.2% of the women, and after 6 months 52% were still breast-feeding their children.

Chan and Nelson (2000) conducted a study to describe the factors associated with breastfeeding failure during the first 6 months post-partum in Mumbai Maharashtra women. 44 lactating mothers who intended to breastfeed exclusively for at least 3 months were recruited and followed for 6 months post-partum. Information was sought on breastfeeding management in hospital, reasons for stopping of breastfeeding or for providing supplements to babies and sources of lactation support.

The results revealed that the majority (97%) of mothers were given information on the benefits and management of breastfeeding. However, late initiation of breastfeeding and providing supplements to babies were common. Insufficient milk supply (44%), breast problems (31%) and being too tired (28%) were the main reasons stated for stopping breastfeeding. These study concluded that the difficulties in sustaining breastfeeding in Maharashtra women.

Watkin Stephani (2011) conducted a study to determine the prevalence rate of lactation failure in postnatal mother. 519 mothers had attended in the study. Analysis of the data revealed that at the time of the 1st visit to the clinic, 65.9% mothers had already started supplementary top feeds and the commonest reason encountered was mother's own assessment of inadequate milk seen in 73.6% mothers. Mother and infant evaluation revealed no complications with 86.5% mothers and with 54.5% babies. Local breast problems were detected in 19.3% mothers. Faulty positioning was observed in 47.2% patients. The study concluded that psychological support to mothers was the most important form of therapy given.

Chan, Nelson & Leung (2000) conducted a comparative study to determine the causative factors responsible for failure of Breast Feeding in post-partum women in Military hospital Rawalpindi in UP. 50 patients at post-natal Gynaecology ward were attended in the study. Patients were divided into two groups of 25 each. Those patients who were exclusively breast feeding their babies were included in group-II while group-I included those patients who were not breast feeding their babies at all. Patient's demographic data was entered on questionnaire and factors. The most important causative factor responsible for failure of breast feeding in group-I were noted down. The mothers in group-II were enquired about that problem. Data was

analyzed by using computer software program SPSS version 11. The study shown that as compared to group-II causative factors involved in failure of lactation in group-I were pain at operated site 10, insufficient milk production 9, Breast abscess 4 and failure of proper counselling.

Otsuka et.al (2008) conducted a study to find the relationship between maternal perception of insufficient milk and breastfeeding confidence using the breastfeeding self efficacy scale. Two hundred and sixty-two mothers were the sample and the data has collected using a structured questionnaire. The findings of the study showed that although most mothers intended to exclusively breastfeed, less than 40% were doing so at 4 weeks of postpartum. Among the mothers using formula, 73% cited perceived insufficient milk as the primary reason for supplementation or completing discontinuing breastfeeding. Mothers' perception of insufficient milk at 4 weeks postpartum was significantly related to breastfeeding self-efficacy in hospital in the immediate postpartum period ('r' value is 0.45 and $p < 0.001$.) The study revealed that breastfeeding self efficacy explained 21% of the variance in maternal perceptions of insufficient milk and the contribution was independent of socioeconomic variables.

2.2. Literature related to effectiveness of reflex zone stimulation among post natal mothers.

Peng, Qiu, Meng, Zhou & Weidan (2007) conducted a controlled study among post partum women experiencing anxiety and depression, six hours of reflexology work demonstrated among experimental group. A significant difference for foot

reflexology with traditional Chinese medicine foot bath group has noted when compared to control groups. It has seen a marked reduction in anxiety and depression.

Peng Guizhi et.al (2007) conducted a study showed that postpartum women given six hours of foot reflexology work with traditional Chinese medicine foot bath showed a significant difference in: appetite; lactation; anxiety and depression scores when compared to the control group.

Zhongcuifang et.al (2003) conducted a study showed that post partum women recovering from Caesarean section showed a significantly shorter first voiding time when receiving foot reflexology or machine (electric foot roller) foot reflexology as compared to the control group. Post partum women recovering from Caesarean section showed a significant difference in time to first defecation when receiving reflexology for three days as compared to the control group.

2.3. Literature related to effectiveness of reflex zone stimulation on initiation of lactation among postnatal mothers.

Siu-lan Li (1996) conducted an experimental study to assess the effect of foot reflexology in parturient women. Two groups of new mothers were followed for satisfactory lactation. A treated group of 100 was given foot massage within 30 hours after delivery and 17 were given foot massage from 30 to 120 hours after for 10 to 15 minutes a day. No treatment was given to a group of 100 women. In the treatment group, lactation was initiated in 43.47 hours (+12.39 hours). In the control group it was 66.97 hours (+28.16 hours). In 72 hours satisfactory lactation was documented in 98% and 67% respectively in the two groups. The study concluded that foot massage was found helpful to avoid use of drugs in lactation that may be harmful to the baby.

Zhang Jie (2009) conducted an experimental study to assess the effectiveness of foot reflexology in the treatment of Hypogalactia. Ten cases of Hypogalactia (deficiency of milk secretion) were treated with foot reflexology (FR) successfully. Compared with routine therapies the investigator asserted that foot reflexology provided abundant and stable sources of milk, that foot reflexology enhanced both mother and babies immune function, that foot reflexology has rapid effect and needs less time and that foot reflexology avoids the intake of drugs, which may be absorbed by the baby through the breast milk. A study concluded that foot reflexology in treatment of Hypogalactia was found effective.

Laura Thomas (2000) conducted a study to assess the effectiveness of therapeutic reflexology to support breastfeeding & increase lactation. In this study, each research participant received ten therapeutic reflexology treatments each, whilst a comparison of expressed milk volume before & after the reflexology treatments determined the effect of the treatments on lactation. The overall increase in milk volume for the research participants was 88 %. Furthermore, the treatments contributed towards increased confidence & satisfaction with breastfeeding. Therefore it is concluded that therapeutic reflexology nurtures the body, mind & spirit, reduces stress, & aids hormonal balance, thereby helping to alleviate the problem of insufficient milk supply.

Degirmen, Ozerdogan & Sayiner (2010) conducted an experimental study to determine the efficiency of foot and hand massage on enhancing lactation in mother who had caesarean operation. This pre test–post test design study was planned as a randomized controlled experimental study. The study revealed that the foot reflexology was significantly meaningful in the intervention groups when compared

to the control group. It was also noted that vital findings were measured comparatively lower before the massage in the test groups, and they were found to be relatively increased in the measurements conducted right after the massage, which was considered to be statistically meaningful.

A comparative study sought to identify an appropriate methodology to investigate the impact of reflexology in healthcare settings. 30 participants underwent either reflexology or no treatment (control), in a cross-over experimental design. Self reported anxiety, cardiovascular parameters (BP and pulse rate) and insufficient milk supply were assessed before and after reflexology. Reflexology had a powerful anxiety-reduction effect ('state'; $P < 0.001$) but no significant effect on underlying anxiety ('trait'), cardiovascular parameters decreased ($P < 0.001$), increased in lactation following reflexology. The study concluded that reflexology reduced 'state' anxiety and cardiovascular activity within healthy individuals, consistent with stress-reduction and increased the milk supply. (Mobile Foot Clinic-Scientific Research)

METHODOLOGY

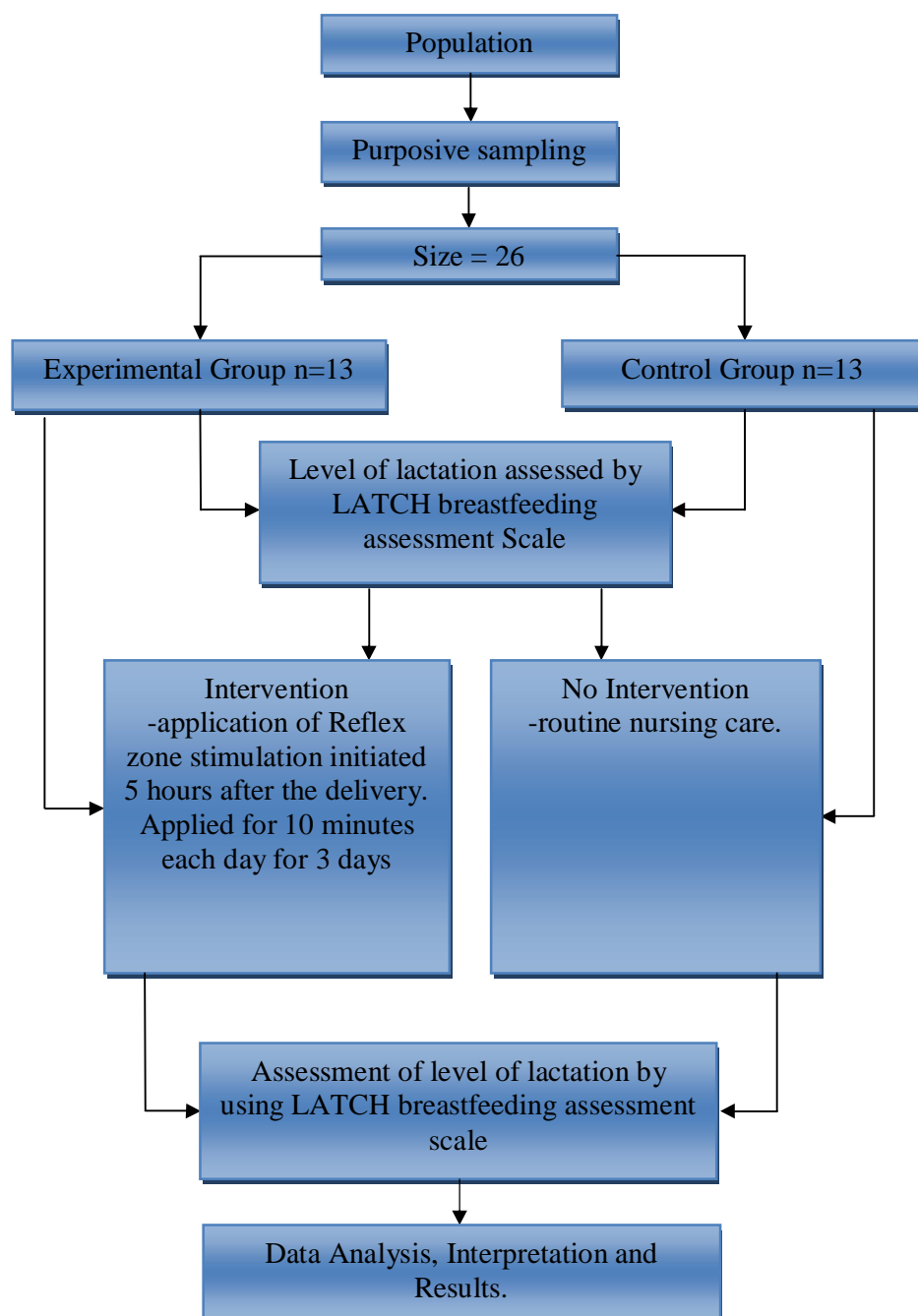
Effect of reflex zone stimulation on lactation among post caesarean mothers at Sri Ramakrishna hospital, Coimbatore.

3.1. RESEARCH APPROACH

The present study aimed to determine the effect of reflex zone stimulation on lactation among post caesarean mothers. Hence, a quantitative research approach was adopted for this study.

3.2. RESEARCH DESIGN

Quasi experimental pre-test post-test with control group design was adopted in this study.

Fig.3.1**Schematic representation of research Design**

3.3. SETTING

The study was conducted in the post-operative ward of the obstetrical unit at Sri Ramakrishna Hospital, Coimbatore. The hospital's bed strength is 740. Obstetrical & Gynaecological Unit consist of 40 beds. Approximately 30-70 caesarean deliveries are conducted per month in the present setting.

3.4. POPULATION

Mothers who underwent elective or emergency caesarean section and delivered a full term normal newborn at Sri Ramakrishna Hospital.

3.5. CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

Mothers who have delivered full term normal newborn and are willing to participate in the study.

Exclusion criteria

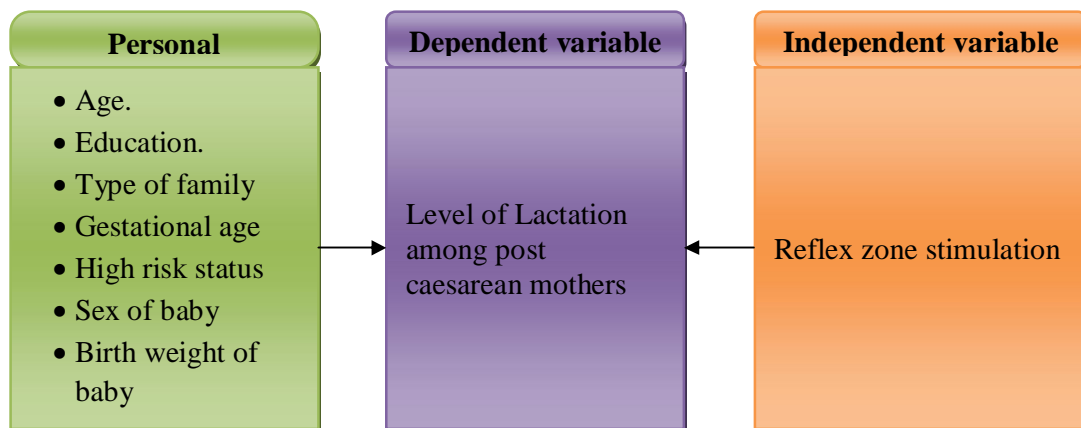
Mothers who have deep vein thrombosis.

3.6. SAMPLING

Purposive samples of 26 post caesarean mothers who fulfill the inclusion criteria were included in the study. The samples were randomly assigned to experimental (N=13) and control group (N=13).

3.7. VARIABLES UNDER THE STUDY

The independent variable of the present study was Reflex zone stimulation and the dependent variable is Level of Lactation.



3.8. MATERIALS

3.8.1. Tool

The tool used for the study comprised of the following details

1. Demographic data.
2. LATCH breastfeeding assessment scale (Jenson D, Wallase S and kelsay P).
3. Reflex zone stimulation.

Demographic data

The data profile comprised of information regarding age, educational status, type of family, gestational age, high risk status, sex of baby and birth weight of baby.

Latch Breastfeeding Assessment Scale

LATCH Breastfeeding Assessment scale was developed by Jenson D,Wallase S and Kelsay P. This scale consists of 5 components comprises of Latch, Audible swallow, Type of nipple, Comfort and Hold in which total score ranges from 0 to 10.

Scoring

Least favourable = 1- 3

Favourable = 4 - 6

Most favourable = 7 – 10

Administration of tool

The samples of the study were post caesarean mothers with full term normal new born at Sri Ramakrishna Hospital. The LATCH breastfeeding assessment scale was used to measure the LATCH score. Reflex zone stimulation was initiated 5 hours after the delivery. The intervention was applied for 10 minutes each day for 3 days. The mothers were instructed to breastfeed the baby. The LATCH score was assessed before and after three sessions of intervention. The pre-test score and post test score are interpreted as highly favourable, favourable, and least favourable.

Reflex Zone Stimulation

Reflexology is an effective tool in relaxing mothers, allowing a more nurtured body, mind and spirit, which in turn help in establishing and maintaining lactation.

Interventional procedure

The intervention was provided 5 hours after caesarean section once daily for three days. The total duration of the procedure was 10 minutes.

Pre procedure

1. Explain the procedure to the mother
2. Provide comfortable and unconstrained position to the mother
3. Ask the mother to avoid talking during the intervention unless necessary.

Procedure of reflex zone stimulation:

STEP 1: Wash hands.

STEP 2: Assess the LATCH score during breastfeeding before the intervention using LATCH breastfeeding assessment scale.

STEP 3: Apply reflex zone stimulation over toes of the foot for 10 minute using following steps

- (i) Ask the mother to lie in a supine or semi sitting position.
- (ii) Ask to keep the feet with toes pointing upward.
- (iii) Support the right foot of the mother with the left hand of researcher and start with relaxation massage from toes to heel.
- (iv) Stimulate the meridian points at the toes in clock wise and anti clock wise direction.
- (v) Thumb walking should be started from the base of the big toe to the top and from the top to the base and the same technique should apply for the other foot toes till the outside of the little finger.

- (vi) Go back to the big toe and apply pressure to the planter surface of the big toe and other toes with the finger knuckle of the researcher.
- (vii) The thumb walking for the right foot is 5 minutes and repeats the same technique for the left foot for another 5 minutes.
- (viii) The same procedure has to repeat after 24 hour interval for both the feet for 3 days.

Post procedure

1. Wash hands
2. Record procedures with date, time and observations

3.9. HYPOTHESIS

H₀: There is no significant difference in the Level of lactation among experimental and control group before the application of reflex zone stimulation

H₁: There is a significant difference in the Level of lactation in the experimental group before and after the application of reflex zone stimulation.

H₂: There is a significant difference in the Level of lactation between experimental and control group after reflex zone stimulation.

3.10. PILOT STUDY

Pilot study was conducted in the post- operative obstetric ward of Sri Ramakrishna Hospital, Coimbatore for a period of 10 days. Purposive samples of 8 caesarean mothers were selected for the study and randomly assigned into both experimental and control group. Assessment of lactation was done before and after

reflex zone stimulation by using LATCH breastfeeding assessment scale. The reflex zone stimulation was given for 10 minutes duration for 3 days. Results of the pilot study revealed that reflex zone stimulation has improved the level of lactation.

3.11. MAIN STUDY

The main study was conducted to meet the objectives of the present study. The data was collected for a period of 30 days from July 2013 to August 2013 at Sri Ramakrishna Hospital, Coimbatore. Purposive sampling of caesarean mothers 5 hours after delivery was selected as samples for the study. Assessment of level of lactation was done before and after reflex zone stimulation by using LATCH breastfeeding assessment scale. Reflex zone stimulation was given for 10 minutes duration for 3 days. The researcher provided reflex zone stimulation for the experimental group whereas the control group received routine assistance for breastfeeding only.

3.12. TECHNIQUE OF DATA ANALYSIS AND INTERPRETATION

Frequency tables were formulated for all significant demographic data. Both descriptive and inferential statistical methods were adopted for data analysis. Descriptive statistics was applied for demographic variable analysis; while 't' test was used to find out the effect of reflex zone stimulation on lactation among post caesarean mothers.

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the methods and techniques used for data analysis and their interpretation on the effect of reflex zone stimulation on lactation among post caesarean mothers conducted at Sri Ramakrishna Hospital, Coimbatore. The study was conducted among 26 women who were randomly assigned to the experimental and control group on their first post-operative day when they were out of the anaesthesia effect. Level of lactation was assessed using LATCH breast feeding assessment scale.

The data collected were analyzed using descriptive and inferential statistics and presented in the form of tables and figures

SECTION 1

4.1. PRESENTATION OF THE DEMOGRAPHIC DATA

Data was collected from 26 mothers who participated in the study after screening them for the inclusion criteria. The data was collected based on LATCH breast feeding assessment scale. The data was tabulated under appropriate headings which facilitated the analysis and the interpretation of the findings in relation to the effect of reflex zone stimulation on lactation among post caesarean mothers.

The demographic items included in the study were age, education, type of family, gestational age, high risk status and birth weight of the baby.

Table no .4.1
Distribution on Demographic Variables

(N=26)

Demographic Variable	Experimental Group		Control Group	
	No. of mothers	Percentage (%)	No. of mothers	Percentage (%)
Age in Years				
20-25	4	30	6	46
26-30	6	46	4	32
31-35	3	24	2	15
36-40	-	-	1	7
Educational Profile				
Illiterate	-	-	-	-
Primary	-	-	1	8
Secondary	2	15	4	31
Higher secondary	2	15	-	-
Graduates	5	40	5	38
Post graduate	4	30	3	23
Type of Family				
Joint family	7	54	5	38
Nuclear family	6	46	8	62
Gestational Age (in weeks)				
37	2	15	3	23
38	6	46	6	46
39	5	39	3	23
40	-	-	1	8
Risk Status				
No risk	9	68	11	84
Elderly	-	-	1	8
Cardiac disease	-	-	1	8
Big baby	1	8	-	-
Hypertension	2	16	-	-
Placenta previa	1	8	-	-

Demographic Variable	Experimental Group		Control Group	
	No. of mothers	Percentage (%)	No. of mothers	Percentage (%)
Sex of the Baby				
Male	6	46	8	62
Female	7	54	5	38
Birth Weight (kg)				
2.5-3	5	39	3	23
3-3.5	7	54	9	69
3.5-4	1	7	1	8

The above table shows the distribution of demographic variables under experimental and control group.

The distribution of the women based on the age shows that in the experimental group majority (46%) of women were in the age group 25 – 30 years and least number of women (24%) were equally present in the age group 31 – 35 years. In the control group majority of women (46%) were in the age group 21 - 25 years and the least number of women were equally present in the age group of 36 – 40 years.

The distribution of women based on the education shows that in the experimental group majority of women (40%) were having higher education and 15% were equally having primary education and secondary education. In the control group 38% of women had higher education and 8% of the women were having primary education.

The distribution of women based on the type of family reveals that majority of women about 54% in experimental group belong to joint family where as in control group maximum women about 62% were from nuclear family.

The gestational age of mothers reveals that in both the experimental and control group majority of mothers about 46% underwent caesarean section at gestational age of 38 weeks. It was identified that maximum mothers in experimental (68%) and control group (84%) were free from high risk status.

It was noted that among experimental group 54% were female babies and 46% were male babies where as in control group 62% were male babies and 38% were female. In regards of birth weight of newborns, majority of babies comes between 3.3 – 3.5 kg in both experimental and control group.

SECTION II

4.2.1. DISTRIBUTION ON LEVEL OF LACTATION BEFORE AND AFTER REFLEX ZONE STIMULATION AMONG POST CAESAREAN MOTHERS

The level of lactation among post caesarean mothers was assessed with standardized tool of LATCH breast feeding assessment scale with categorization of LATCH scores into least favorable, favorable and most favorable.

Table 4.2.1

**Distribution on Level of Lactation Before and After Reflex Zone Stimulation
among Post Caesarean Mothers**

(N = 26)

Group	Interpretation on LATCH Score	Before Intervention		After Intervention	
		No. of mothers	Percentage (%)	No. of mothers	Percentage (%)
Experimental	Least favourable	6	46	-	-
	Favourable	7	54	-	-
	Highly favourable	-	-	13	100
Control	Least favourable	8	62	-	-
	Favourable	5	38	12	92
	Highly favourable	-	-	1	8

The above table confirms that all the mothers in the experimental group and control group come under least favourable and favourable category before the intervention. After the application of reflex zone stimulation among mothers in the experimental group, 100% of the mothers come in most favourable category. While, the mothers in the control group comes under favourable (92%) and highly favourable

(8 %) category. This shows that reflex zone stimulation has effect on Lactation among post caesarean mothers.

4.2.2. ASSESSMENT ON LEVEL OF LACTATION AMONG POST CAESAREAN MOTHERS BEFORE AND AFTER REFLEX ZONE STIMULATION

Level of lactation was assessed for post caesarean mothers using LATCH breast feeding assessment scale before and after Reflex zone stimulation. This scale consists of 5 components with a scoring as 0, 1, and 2. The total score varies from 0 to 10.

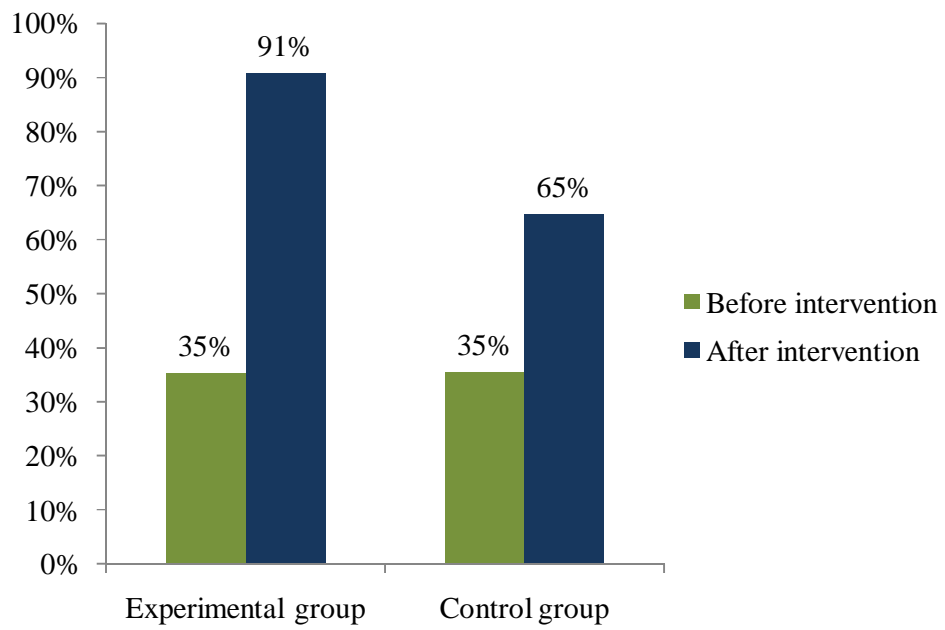
Table No. 4. 2.2

Assessment of Latch Scores among Post Caesarean Mothers Before and After Reflex Zone Stimulation

(N= 26)

Group	Before			After		
	Mean	Standard deviation	Mean%	Mean	Standard deviation	Mean %
Experimental	3.53	0.75	35	9.08	0.50	91
Control	3.54	0.70	35	6.46	0.75	65

The above table confirms that the mean latch score of post caesarean mothers in the experimental group using Latch breast feeding assessment scale was 3.53 and it increased to 9.08 after Reflex zone stimulation with a standard deviation of 0.75 and 0.50 respectively. In the control group the mean latch score was 3.54 and it increased to 6.46 only with a standard deviation of .70 and .75 respectively.

**Table.4.1****Mean Percentage of Latch Score Before and After Intervention**

SECTION III

4.3. COMPARISON ON LATCH SCORES AMONG POST CAESAREAN MOTHERS BEFORE INTERVENTION

LATCH scores of mothers in experimental and control group before intervention was analyzed using 't' test for independent sample.

Table No. 4.3.

Comparison on Latch Scores among Post Caesarean Mothers Before Reflex Zone Stimulation

(N= 26)

Group	Mean	Mean%	Standard deviation	't' value
Experimental	3.53	35	0.75	0.0305
Control	3.54	35	0.70	

***Significant at 0.05 level**

The mean percentage of LATCH score of experimental group and the control group was 35%. The calculated 't' value was 0.0305 which was lesser than the table value. Hence the hypothesis H_0 : "There is no significant difference in level of lactation among experimental and control group before the application of reflex zone stimulation" is accepted. Thus the significance in score proves that the two groups are drawn from a homogenous population.

4.4. ANALYSIS OF LATCH SCORES AMONG POST CAESAREAN MOTHERS USING LATCH SCALE

‘t’ test is a statistical hypothesis test, used in the present study to compare the mean score of post caesarean mothers prior to and following the intervention in experimental and control group.

Table No. 4.4

**Analysis of Latch Scores among Post Caesarean Mothers
using Latch Scale**

(N=26)								
Group	Before			After			Mean difference	‘t’
	Mean	SD	Mean %	Mean	SD	Mean %		
Experimental	3.53	0.75	35	9.08	.50	91	5.55	19.71*
Control	3.54	0.70	35	6.46	.75	65	2.92	9.59*

***Significant at 0.05 level**

The mean difference of experimental and control group was 5.55 and 2.92 respectively. The calculated ‘t’ value in the experimental group was 19.71 which was compared with table value at 0.05 level of significance. . The calculated value was higher than the table value. Hence the hypothesis **H₁: “There is a significant difference in level of lactation among experimental group before and after the application of reflex zone stimulation”** is accepted. The calculated ‘t’ value of control group was also higher than table value at 0.05 level. . But experimental group was more significant than control group. Thus the mean latch score proves that reflex zone stimulation has higher effect on lactation among post caesarean mothers than the level of lactation resulted by natural physiological response after delivery in the control group.

4.5. COMPARISON ON LATCH SCORES AMONG POST CAESAREAN MOTHERS IN EXPERIMENTAL AND CONTROL GROUP AFTER INTERVENTION

LATCH scores of post caesarean mothers in experimental and control group after intervention was analyzed to identify the significance of reflex zone stimulation on lactation. Analysis was done using 't' test for independent variable

Table No. 4. 5

Comparison on Latch Scores among Post Caesarean Mothers in Experimental and Control Group After Reflex Zone Stimulation.

(N= 26)

Group	Mean	Mean%	Standard deviation	't' value
Experimental	9.08	91	0.5008	9.3472*
Control	6.46	65	0.7549	

***Significant at 0.05 level**

The mean Latch score of experimental group was 9.08 and the control group was 6.46 with a standard deviation of 0.5008 and .7549 respectively. The calculated 't' value was 9.3472 was higher than the table value. Hence the hypothesis **H₂: "There is a significant difference in the level of lactation between experimental and control group after reflex zone stimulation"** is accepted.

RESULTS AND DISCUSSIONS

The study was conducted at Sri Ramakrishna Hospital, Coimbatore, with the focus on determining the effect of reflex zone stimulation on lactation among post caesarean mothers. The samples of the study were post caesarean mothers at Sri Ramakrishna Hospital and they were randomly allocated into experimental and control group. Reflex zone stimulation was applied to stimulate breast milk secretion and thereby enhancing breast feeding. To assess the progress in level of lactation while breast feeding, the researcher used LATCH breast feeding assessment scale. Reflex zone stimulation was initiated 5 hours after the caesarean section. The intervention was applied for 10 minutes each day for 3 days. The mothers were instructed to breastfeed the baby to assess LATCH score before and after 3 sessions of intervention. The pre test score and post test score was interpreted as highly favourable, favourable, and least favourable.

It was viewed that all the samples in the present study underwent lower segment caesarean section. Caesarean section rates are at an all time high all over the world and are expected to keep rising. Nearly one in three babies are now delivered surgically. Even though caesarean section brings better health outcomes for mother and infant, many experts believe that it is been over performed and the main drawback found in performing caesarean section is delayed initiation of lactation. A recent trial by WHO (2012) has shown that early initiation of breastfeeding could reduce neonatal mortality by 22%, which would contribute to the achievement of the Millennium Development Goals. Globally, over one million newborn infants could be saved each year by initiating breastfeeding within the first few hours of life.

Mothers in both experimental and control group had least favourable scores in LATCH breastfeeding assessment scale at first post operative day. The researcher identified an urgent need in enhancing breast milk secretion and thereby promotes breastfeeding among post caesarean mothers. Neville MC (2004) conducted a study Shows that delayed lactogenesis does occur with stressful deliveries especially in caesarean section and there is a delay in early removal of colostrum from the breast. C section presents a few challenges like anaesthetic effect, physical and emotional exhaustion in mother which are unfavourable for successful initiation of lactation.

Researcher preferred LATCH breast feeding assessment scale over the other scales. LATCH breast feeding assessment scale is widely used in assessing breastfeeding. The LATCH tool appears most useful in objective scoring of effective breast feeding. The tool consists of 5 components (Latch, Audible swallowing, type of nipple, comfort and hold) in which total score ranges from 0 to 10.

Reflex zone stimulation was considered to be a significantly appropriate method in enhancing breast feeding among post caesarean mothers. Reflexology work helped avoid use of drugs for milk ejection and found significant difference in breast feeding, appetite, anxiety and depression scores. The study published in complementary in nursing and midwifery (2000) found that foot reflexology is effective in maintaining the body, mind and spirit so as to increase and maintaining lactation. Therefore Performing reflexology treatment even for once shows effectiveness but, would not be as effective as regular performances and therefore the reflexology intervention should be performed successively in post-operative patients (Hattan, 2002). The study conducted by serene sole (2012) found that, the volume of milk increased by 88 % in nursing mothers who received reflexology treatment for 2

days. According to science of reflexology, feet and toes are the points corresponding to breast. The efficiency of reflex zone stimulation is heightened with the recurrent performances with fixed intervals and fixed duration. . It also showed a significant short voiding time and defecation time for post caesarean mothers (International Reflexology 1996).

5.1. FINDINGS RELATED TO DEMOGRAPHICAL DATA

5.1.1. Age Distribution

The age distribution of mothers revealed that majority of mothers in the experimental group (77%) and control group (54%) were above 25 years of age. The highest age extremity of the mother was 40 years. Several studies have found that advanced maternal age is a risk factor for caesarean birth. A retrospective cohort study conducted by Nkwabong et al., (2004) reported that women aged 27 years and above had a significantly increased risk of obstetrical complications such as caesarean section, instrumental delivery and poor neonatal outcome.

5.1.2. Gestational Age

In present study both experimental and control group, majority of mothers had caesarean section at the gestation week of 38 and 39 weeks irrespective of previous caesarean section. In a study presented at the Society Maternal-fetal Medicine's Annual Meeting in Texas stated that the optimal time for elective caesarean section is 39 weeks for women with previous caesarean section.

5.1.3. High risk status

Maximum of 68% of mothers in experimental and 84% of mothers in control group underwent elective caesarean section without any medical and obstetrical risk status. Several studies have found that elective caesarean deliveries are increasing more than emergency caesarean deliveries. There has been a lot of interest in C-sections to prevent complications that may arise with childbirth (NICHD's Dr. Spong).

Findings Related To Effect Of Reflex Zone Stimulation On Lactation Among Post Caesarean Mothers Using Latch Breast Feeding Assessment Scale.

The present study was based on a similar study conducted by zhang Jie (2006) to assess the effectiveness of foot reflexology in the treatment of Hypogalactia. Ten cases of Hypogalactia (deficiency of milk secretion) were treated with foot reflexology (FR) successfully. Compared with routine therapies the investigator asserted that foot reflexology provided rapid effect on milk secretion and enhanced both mother and babies' immune function, Foot reflexology avoids the intake of drugs, which may be absorbed by the baby through the breast milk. The study concluded that foot reflexology is effective in the treatment of Hypogalactia.

In the present study LATCH breast feeding assessment scale was used to assess the breast feeding before and after reflex zone stimulation. It was identified that all the mothers in the experimental and control group had least favourable and favourable LATCH while breast feeding the baby before the intervention. After the application of reflex zone stimulation to the mothers in experimental group the LATCH scores has increased to most favourable gradually. The findings showed that

LATCH scores increased in one application of reflex zone stimulation and hence the reflex zone stimulation was repeated in every 24 hours for 3 days. The mean LATCH score of post caesarean mothers in the experimental group using LATCH breast feeding assessment scale was 3.53 and it increased to 9.08 after Reflex zone stimulation with a standard deviation of 0.75 and 0.50 respectively. In the control group the mean LATCH score was 3.54 and it increased to 6.46 only with a standard deviation of .70 and .75 respectively. The mean LATCH scores of mothers prove that the effect of reflex zone stimulation on lactation is comparatively higher in experimental group than, resulted by natural physiological changes in control group of post caesarean mothers.

In light of the findings of the current study, it was identified that reflex zone stimulation can be used as an effective nursing initiative in breast milk secretion and promoting breastfeeding without use of any drugs among mothers who underwent C-Section. Hence, reflex zone stimulation can be used as an alternative therapy as it is effective, inexpensive and easily applied strategy for promoting breast feeding.

5.2. TESTING HYPOTHESIS

The calculated 't' value was 9.347 which was found to be significant at 0.05 level while comparing the LATCH scores among post caesarean mothers in experimental and control group after intervention. Hence the hypothesis "there is a significant difference in the level of lactation between experimental and control group after reflex zone stimulation" is accepted. This proves that reflex zone stimulation is effective in enhancing lactation among post caesarean mothers.

SUMMARY AND CONCLUSION

The major focus of the study was to assess the effect of reflex zone stimulation on lactation among post caesarean mothers. Postpartum period can be one of the most challenging times as it is normal for the mother to feel overwhelmed emotionally and physically drained. A woman who undergoes a caesarean section requires both the *care* given to any new *mother* and the *care* given to any patient recovering from major surgery. Alternative and complementary therapy has become popular in the field of medicine and nursing for effective breast feeding. Among them foot reflexology has the potential to enhance the milk secretion and maintaining successful breastfeeding (Rachel Kelly, 2004).

Conceptual framework of the study was based upon Sr. Calista Roy's adaptation model (1980).

Extensive review of literature was done on failure of initiation of lactation among post caesarean mothers, effect of reflex zone stimulation among post natal mothers, and effectiveness of reflex zone stimulation on initiation of lactation among post caesarean mothers. The present study was conducted at Sri Ramakrishna Hospital, Coimbatore. Quasi experimental pre test post test with control group design was adopted and purposive sample of 26 post caesarean mothers who were out of the effect of anaesthesia were included for the study. Informed consent was obtained from the selected mother after brief explanation of the study and intervention. Level of lactation was assessed using LATCH breast feeding assessment scale before and after reflex zone stimulation. Reflex zone stimulation was given to the post caesarean mothers for 10 minutes each day for 3 days. The findings of the study proved that

reflex zone stimulation was effective in enhancing milk secretion and promote breast feeding after caesarean section.

6.1. MAJOR FINDINGS OF STUDY

1. Reflex zone stimulation was effective in maintaining good lactation among post caesarean mothers in the experimental group when compared with their counterparts in the control group who received routine nursing care.
2. The mean LATCH score of experimental group has improved from 35% to 91%, where as the mean scores of mothers in control group increased from 35% to 65% only.

6.2. RECOMMENDATIONS

1. Nurse midwives should be trained to implement reflex zone stimulation in the clinical settings.
2. A similar study can be conducted to identify the effect of reflex zone stimulation on sleep, reducing pain, bowel and bladder pattern in various obstetrical and gynaecological surgeries.
3. A study can be conducted to assess the effect of reflex zone stimulation on labour pain among mothers in first stage of labour.
4. A study can be conducted to assess the effect of reflex zone stimulation on menopausal symptoms.

6.3. NURSING IMPLICATIONS

Study has identified major implications in all the aspects of nursing namely clinical practice, administration, education and research.

6.3.1. NURSING EDUCATION

Reflex zone stimulation is considered to be one of the effective non pharmacological interventions in enhancing breast milk secretion and promoting breastfeeding among post natal mothers. It can be included in detail in the nursing curriculum. This helps the students to develop a positive attitude towards these therapies which is the global trend in nursing and midwifery.

6.3.2. NURSING PRACTICE

Nursing, however is a holistic approach at its essence. With nationwide interest in alternative and complementary therapy nurses can actively incorporate these modalities into their practice. These modalities give additional tool to meet client's need. Registered nurses are professional health care providers who are qualified to make appropriate judgments, decisions and recommendations to their clients regarding the nursing care to be provided including the application of therapies in the complementary mode as nursing interventions. Nurses must regularly attend continuing education sessions on techniques such as reflex zone stimulation, acupressure, guided imaginary and therapeutic touch to implement these therapies successfully. This will bridge the need of complementary therapies in hospital setting.

6.3.3. NURSING ADMINISTRATION

Nursing administrators can draw written policies to integrate reflex zone stimulation in to existing protocol for care of caesarean mothers. It is vital that all nurses are aware of implication associated with the use of non pharmacological methods in their respective settings. Nurses who choose to use non pharmacological

therapies must ensure that they are trained to a standard recognised as competent by the regulatory body for each therapy.

6.3.4. NURSING RESEARCH

Though the aspect of reflex zone stimulation is a well researched aspect in obstetrics still it remains the most challenging area. The findings of the present study can be utilized by the nurse researchers to accumulate new knowledge for early initiation of breast milk secretion and baby maintained good latch while breast feeding. The effect of reflex zone stimulation can be further experimented with clinical trials for more concrete findings.

6.4. CONCLUSION

Reflex zone stimulation has improved the level of lactation by the baby among post caesarean mothers and they experienced increased level of comfort and wellbeing. It also optimized mother's ability to care for their newborn. Hence, the researcher strongly suggests that the nurse midwife should adopt this intervention in their clinical practice to promote early initiation of breast milk secretion among caesarean mothers.

REFERENCES

- Amanda Gwynne long. Reflexology in Pregnancy and Birth.(2009). Retrieved from:
<http://www.highlandholistics.co.uk/Reflexology.pdf>.
- Bushnell IWR, Sai F, Mullin JT.(1989). Neonatal Recognition of the mother's face.
 British Journal of Developmental Psychology; 11(4): 251-260.
- Christensson K, Seles C, Moreno L et al. (1992). Temperature, metabolic adaptation
 and crying in healthy newborns cared for skin-to-skin or in cot. Acta
 Paediatrica Scandinavica; 23(6): 110-130.
- Christensson K, Cabrera T, Christensson E et al. (2003). Separation distress call in the
 human neonate in the absence of maternal body contact: Acta
 Paediatrica, 45(34): 114-345.
- Chan SM. Nelson EA.(2000). Breastfeeding failure in postpartum maternal nutrition.
 Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed/11036803>
- Chan SM. Nelson EA. Leung BS. (2000). Breast feeding in a longitudinal post
 partum maternal nutrition study. Journal of Hong Kong Paediatrics; 36(5):466-
 71
- D.C Dutta. (2004). Text Book of Obstetrics. 5rd edition. New Central Books
 Agencies, 449-452.

D'Harlingue AE, Durand DJ. (2001). Recognition, Stabilization, and transport of the high risk newborn in Care of the high-risk neonate. W. B. Saunder's Company.

Degirmen N. Ozerdogan N. Sayiner D.(2010). Effectiveness of foot and hand massage in postcaesarean enhancing lactation in a group of Turkish pregnant women. *Appl Nurs Res*; 23(3): 153-8.

DeChateau P, Wiberg B. (1999). Long term effect on mother-infant behaviour of extra contact during the first hour postpartum. *Acta Paediatrica*. Retrieved from <http://www.uiv.unisa.ac.za>.

Edmond KM, Zandoh C, Quigley MA. (2000). Delayed Breastfeeding Initiation Increases Risk of Neonatal Mortality. *Pediatrics*.

Fifer WP. Moon CM. The role of mother's voice in the organization of brain function in the newborn. *Acta Paediatrica Supplement*.

Gupta, S. P. (2007). *Statistical Methods*. (11th Ed.). New Delhi: Sultan Chand and Sons Publications. *Indian Journal of Community Medicine*, September 29(5).

ILCA (2011).. Clinical Guidelines for the Establishment of Exclusive Breastfeeding. International Lactation Consultant Association's Revision task force. Retrieved from <http://www.breastfeeding.com>.

Illingworth RS. (2009). Abilities & reflexes of the newborn in the development of the infant & young child: Normal and abnormal. Retrieved from: <http://www.pubmed.Com>.

Sakha, k. & .Behbahan, A.G.(2005) The onset time of lactation after delivery.

Medical Journal of the Islamic Republic of Iran. August; 2(19) 135-137.

Lowdermilk, D. L. (2001). Maternity and Women's Health Care. (8th Ed.), Toronto:

Mosby Company, 472-480.

Laura Thomas.(2007). Reflexology to support breastfeeding and increase lactation.

Available from: <http://www.mamatoto.co.za/reflexology-breastfeeding/> 1/2.

Laura Thomas.(2007). Reflexology to Support Breastfeeding & Increase Lactation.

Available from: www.mamatoto.co.za/reflexology-breastfeeding.

Mobile Foot Clinic-Scientific Research i in Reflexology. Available from: [http://www.](http://www.mobile-foot-clinic.com/scientific-research/scientific-research.html)

[mobile-foot-clinic.com/scientific-research/scientific-research.html](http://www.mobile-foot-clinic.com/scientific-research/scientific-research.html).

Noronha.J.,(2013). Teaching primi gravida women about warning signs in pregnancy.

Indian Journal of Nursing. 18(19), 120-130.

Otsuka K. Dennis CL. Tatsuoka H. Jimba M.(2008). The relationship between

breastfeeding self efficacy and perceived insufficient milk among Japanese mothers. JOGNN ; 546-54.

Peng Guizhi, Qiu snow-sheung, Meng Li-fang, Zhou Ying,Wei Dan He., (2007).

Post-natal care and intervention on anxiety, depression impact study,

Retreived on August 11.2013, from <http://www.livestrong.com>.

Peng Guizhi et.al., (2007). Study for the effect of recovery for puerperium women

treated Chinese native medicine foot bath combined with full foot bottom

- massage. Nurse education magazine, 2(3), 141-152. Retrieved on August 11, 2013 from <http://www.livestrong.com>.
- Pillitteri Adele., (2007). Maternal and Child Health Nursing. (5th Ed.), Philadelphia J.P. Lippincott Company, 523-526
- Padua, Brescia, L. Aquila and Udine. (2011). Effect of elective primary and elective repeat caesarean deliveries on lactation at hospital discharge. Italy. Available from: <http://fn.bmj.com>.
- Siu-lan Li. (1996). Effect of Foot Reflexology in 217 Parturient Women. Beijing International Reflexology Conference (Report). China Preventive Medical Association and the Chinese Society of Reflexology. Beijing; p. 14
- Vestermarck, V., Hogdall, C.K., Birch, M., Plenov, G., Toftager-Larsen, K. (2000). Influence of mode of delivery on initiation of breastfeeding. Retrieved on September 24, 2013 from. <http://www.pubmed.com>.
- Wang, B. S., Zhou, L. F., Zhu, L. P., Gao, E. S. et al. (2000). Prospective observational study on effects of caesarean section on breastfeeding. Retrieved from <http://www.google.co.in>.
- Watkin, Stephani MSPH. (2011). Prevalence rate of lactation failure. Obstetrics and Gynaecology; 3(118) 214-221.
- Zhang Jie. (2009). Effect of foot reflexology in treatment of Hypogalactia. Traditional Chinese Medicine Research Institute. China. Available from: [http://www.google.co.in/effectiveness of reflexology](http://www.google.co.in/effectiveness%20of%20reflexology).

Zhongcuifang et.al (2003).Foot massage on postpartum urinary system rehabilitation research. Journal of Maternal and child health care of china 4(9),5-6,
Retrieved on August 11.2013 from <http://www.livestrong.com>.

APPENDIX I

From,

Deepthi.N,
Msc (nursing) 1year,
College of nursing,
Sri Ramakrishna institute of paramedical science,
Coimbatore.

To,

The Dean,
Sri Ramakrishna hospital,
Coimbatore.

Through

The principal,
College of nursing,
Sri Ramakrishna institute of paramedical science,
Coimbatore.

Respected Sir,

Sub: Requesting permission to conduct study in SRI RAMAKRISHNA HOSPITAL-Reg

I am Deepthi.N doing my 1st year M.Sc nursing in Sri Ramakrishna Institute of paramedical science and as a part of my M.Sc Nursing programme I have undertaken the following study for my research **Effect of Reflex Zone Stimulation on lactation among post caesarean mothers** . I would like to do the above said study in our esteemed institution. I humbly request you to grant me permission to conduct the study in our institution. Herewith I have attached a brief copy of the research proposal.

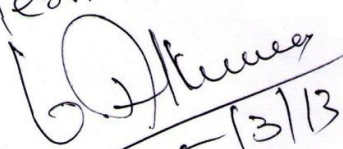
Thanking you,


PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Science
Coimbatore - 641 044.

Yours sincerely,



(Deepthi.N)

Permitted

5/3/13

From,

Deepthi.N,
M.sc.(nursing) 1year,
College of nursing,
Sri Ramakrishna institute of paramedical science,
Coimbatore.

To,

Dr. Lalitha MBBS,DGO,
Consultant obstetrician and gynaecologist,
Sri Ramakrishna hospital,
Coimbatore.

Through

The principal,
College of nursing,
Sri Ramakrishna institute of paramedical science,
Coimbatore.

Respected Madam,

Sub: Requesting permission to conduct study in SRI RAMAKRISHNA HOSPITAL-Reg

I am **Deepthi.N** doing my 1st year M.Sc nursing in Sri Ramakrishna Institute of paramedical science and as a part of my M.Sc Nursing programme I have undertaken the following study for my research "**Effect of reflex zone stimulation on lactation among post caesarean mothers.**" I would like to do the above said study in obstetrics and gynaecology ward of our esteemed institution. I humbly request you to grant me the permission to conduct the study in our institution. Herewith I am attaching a brief copy of the research proposal.

Thanking you,

Permitted.

Permitted
DR. R. LALITHA, M.B.B.S DGO.
Obstetrician & Gynaecologist
Sri Ramakrishna Hospital,
COIMBATORE,

See
PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Science
Coimbatore - 641 044

Yours sincerely,

Deepthi.N
(Deepthi.N)

From,

Deepthi.N,
M.sc.(nursing) 1year,
College of nursing,
Sri Ramakrishna institute of paramedical science,
Coimbatore.

To,

Dr. Bhanumathy MBBS,DGO,
Consultant obstetrician and gynaecologist,
Sri Ramakrishna hospital,
Coimbatore.

Through

The principal,
College of nursing,
Sri Ramakrishna institute of paramedical science,
Coimbatore.

Respected Madam,

Sub: Requesting permission to conduct study in SRI RAMAKRISHNA HOSPITAL-Reg

I am Deepthi.N doing my 1st year M.Sc nursing in Sri Ramakrishna Institute of paramedical science and as a part of my M.Sc Nursing programme I have undertaken the following study for my research "**Effect of reflex zone stimulation on lactation among post caesarean mothers.**" I would like to do the above said study in obstetrics and gynaecology ward of our esteemed institution. I humbly request you to grant me the permission to conduct the study in our institution. Herewith I am attaching a brief copy of the research proposal.

Thanking you,

Permit
Bhanu

Dr. M. BANUMATHY, MBBS, DGO, DNB,
REG. NO: 22336
OBSTETRICIAN & GYNAECOLOGIST


PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Science,
Coimbatore - 641 044

Yours sincerely,


(Deepthi.N)

APPENDIX II

REQUISITION LETTER TO VALIDATE THE RESEARCH TOOL AND CONTENT

From,

Deepthi.N,
M.Sc (Nursing) I year,
College Of Nursing, SRIPMS,
Coimbatore.

To,

*Prof. Sheeba.
HOD - OBG Dept.
KG College of Nursing
Coimbatore.*

Through,

The Principal,
College Of Nursing,
SRIPMS,
Coimbatore.

Respected Sir/Madam,

Subject: Requisition for tool and content validation:-Reg

I am Deepthi.N doing my 1st year M.Sc Nursing in Sri Ramakrishna Institute of Paramedical Sciences and as a part of my M.Sc Nursing Program, I have undertaken the following study for my research "**Effect of Reflex Zone Stimulation on Lactation Among Post Caesarean Mothers**". The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore.

Yours Sincerely,

for K. Ramakrishna
PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

(Deepthi.N)
(Deepthi.N)

CONTENT VALIDITY FORMAT

Name of the Expert : Mrs. R. Sheeba.
Address : professor
K.G. College of Nursing,
Coimbatore.

Kindly validate each section in the tool and mark wherever applicable.

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C		✓		

Total content of the tool : Adequate/Inadequate ✓

Date:




Signature of the Expert

**REQUISITION LETTER TO VALIDATE THE RESEARCH TOOL AND
CONTENT**

From,

Deepthi.N,
M.Sc (Nursing) I year,
College Of Nursing, SRIPMS,
Coimbatore.

To,

Prof. Baby.
HOD - Dept of OBG Nursing
PSG College of Nursing.
Coimbatore.

Through,

The Principal,
College Of Nursing,
SRIPMS,
Coimbatore.

Respected Sir/Madam,

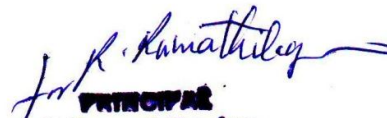
Subject: Requisition for tool and content validation:-Reg

I am Deepthi.N doing my 1st year M.Sc Nursing in Sri Ramakrishna Institute of Paramedical Sciences and as a part of my M.Sc Nursing Program, I have undertaken the following study for my research "**Effect of Reflex Zone Stimulation on Lactation Among Post Caesarean Mothers**". The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.


Thanking you,

Coimbatore.

08/05/13.


PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences

Yours Sincerely,


(Deepthi.N)

CONTENT VALIDITY FORMAT

Name of the Expert : S.BABY, PROF & HOD, OBG NSG. DEPT.
Address : PSG COLLEGE OF NURSING, PEELAMEDU
COIMBATORE.

Kindly validate each section in the tool and mark wherever applicable.

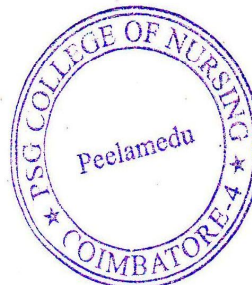
S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C			✓	

Use additional tool
to assess adequacy
of feeding & breast
assessment
just before
feed.

Total content of the tool : Adequate/Inadequate

Date: 10.5.13.

Signature of the Expert



**REQUISITION LETTER TO VALIDATE THE RESEARCH TOOL AND
CONTENT**

From,

Deepthi.N,
M.Sc (Nursing) I year,
College Of Nursing, SRIPMS,
Coimbatore.

To,

PROF. LATHA
PRINCIPAL
RVS COLLEGE OF NURSING
KANNAMPALAYAM

Through,

The Principal,
College Of Nursing,
SRIPMS,
Coimbatore.

Respected Sir/Madam,

Subject: Requisition for tool and content validation:-Reg

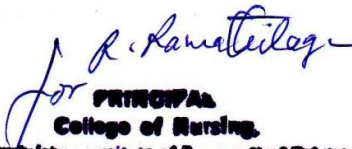
I am Deepthi.N doing my 1st year M.Sc Nursing in Sri Ramakrishna Institute of Paramedical Sciences and as a part of my M.Sc Nursing Program, I have undertaken the following study for my research "**Effect of Reflex Zone Stimulation on Lactation Among Post Caesarean Mothers**". The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore.

08.05.13

Yours Sincerely,


for **PRINCIPAL**
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044


(Deepthi.N)

CONTENT VALIDITY FORMAT

Name of the Expert : PROF(MRS) S.P. LATHA

Address : PRINCIPAL, RVS COLLEGE OF NURSING,
KUMARAN KOTTAM CAMPUS, TRICHY ROAD,
KANNAMPALAYAM, COIMBATORE - 641 402.

Kindly validate each section in the tool and mark wherever applicable.

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C		✓		

Total content of the tool : Adequate/Inadequate

Date: 14.05.2013

Signature of the Expert

PRINCIPAL
R.V.S. COLLEGE OF NURSING
KANNAMPALAYAM
TRICHY ROAD, SULUR
COIMBATORE - 641 402

**REQUISITION LETTER TO VALIDATE THE RESEARCH TOOL AND
CONTENT**

From,

Deepthi.N,
M.Sc (Nursing) I year,
College Of Nursing, SRIPMS,
Coimbatore.

O,

*Dr. Lalitha, MBBS, DGO
Consultant obstetrician + Gynaecologist,
Sri Ramakrishna Hospital,
Coimbatore.*

Through,

The Principal,
College Of Nursing,
SRIPMS,
Coimbatore.

Respected Sir/Madam,

Subject: Requisition for tool and content validation:-Reg

I am Deepthi.N doing my 1st year M.Sc Nursing in Sri Ramakrishna Institute of Paramedical Sciences and as a part of my M.Sc Nursing Program, I have undertaken the following study for my research "**Effect of Reflex Zone Stimulation on Lactation Among Post Caesarean Mothers**". The following tool is tend to be used, hence I request you to kindly give me a valuable suggestion and necessary modification for the same.

Thanking you,

Coimbatore.

09/05/13

Yours Sincerely,

for R. Ramathilay
PRINCIPAL
College of Nursing,
Sri Ramakrishna Institute of Paramedical Sciences
Coimbatore - 641 044

(Deepthi.N)

CONTENT VALIDITY FORMAT

Name of the Expert : Dr. Lalitha, MBBS, DGO


Address : Consultant Obstetrical & Gynaecology,
Sri Rama Krishna Hospital,
Coimbatore.

Kindly validate each section in the tool and mark wherever applicable.

S.NO	SECTIONS OF THE TOOL	STRONGLY AGREE	AGREE	NEED NOTIFICATION	REMARKS
1.	SECTION-A		✓		
2.	SECTION-B		✓		
3.	SECTION-C		✓		

Total content of the tool : Adequate/Inadequate

Date: 13/5/2013


Signature of the Expert

Dr. R. LALITHA, MBBS DGO
Obstetrician & Gynaecologist
Sri Ramakrishna Hospital,
COIMBATORE

APPENDIX III

TOOL FOR DATA COLLECTION

SECTION – A : DEMOGRAPHIC DATA

Sample number –

- a. Age :
- b. Education :
- c. Type of family :
- d. Gestational age in weeks :
- e. High risk status :
- f. Day of post caesarean period :
- g. Sex of baby :
- h. Birth weight of baby :
- i. Date & time of delivery :

LATCH Breastfeeding Assessment

Jenson D, Wallace S, Kelsay P (1994). LATCH: A breastfeeding charting system and documentation tool. JOGNN,23(1):29.

	0	1	Totals	Totals
L Latch	Too sleepy or reluctant No sustained latch or suck achieved	Repeated attempts for sustained latch or suck Hold nipple in mouth Stimulate to suck	Grasps breast Tongue down Lips flanged Rhythmical sucking	
A Audible Swallowing	None	A few with stimulation	Spontaneous and intermittent (< 24 hours old) Spontaneous and frequent (> 24 hours old)	
T Type of Nipple	Inverted	Flat	Everted (After stimulation)	
D Comfort (Breast/ nipple)	Engorged Cracked, bleeding, large blisters or bruises Severe discomfort	Filling Reddened/small blisters or bruises	Soft Non-tender	
H Hold (Positioning)	Full assist (Staff holds infant at breast)	Minimal assist (i.e., elevate head of head, place pillows for support) Teach one side, mother does other Staff holds and then mother takes over	No assist from staff Mother able to position and hold infant	

INTERPRETATION

Least favourable = 1- 3

Favourable = 4 - 6

Most favourable = 7 – 10

APPENDIX IV

TRAINING CERTIFICATE OF REFLEXOLOGY

Dr V.KRISHNASAMY M.D (Acu)
Divine Healing & Yoga Centre
Touch Therapy(Reg No 77/2012)

No 7, SRI KRISHNA NIVAS
PRASANTHI NAGAR, KR
PURAM
COIMBATORE 641006
PHONE :- 0422 2560414/2565901
MOBILE :- 98652 56041
Email:-divinehealing25@gmail.com
Web:- www.divinehealingindia.org

Ref No: - 003/2013

Date :- 6th March 2013

CERTIFICATE

This is to certify that **Ms DEEPTHI N**, I Year M.Sc Nursing, studying at college of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore has undergone one month training program on **"REFLEXOLOGY THERAPY COURSE"** and successfully completed the theory and practical examination under my supervision at Divine Healing & Yoga Centre, Coimbatore on February 2013.

During the course her conduct was found good.



Dr. V. Krishnasamy

DIVINE HEALING & YOGA CENTRE
V. Krishnasamy
7 "KRISHNA NIVAS" Prasanthi Nagar,
K.R. Puram, Coimbatore 641 006.
Near S.N.R. Arts College & School.
0422 2560414, 2565901, Cell. 98652 - 56041
E-mail divinehealing25@hotmail.com

APPENDIX V

CERTIFICATE OF ENGLISH EDITING

TO WHOMEVER IT MAY CONCERN

This is to certify that the dissertation "EFFECT OF REFLEX ZONE STIMULATION ON LACTATION AMONG POST-CAESAREAN MOTHERS AT SRI RAMAKRISHNA HOSPITAL, COIMBATORE" done by DEEPTHI. N., II year M.Sc. Nursing, College of Nursing, Sri Ramakrishna Institute of Paramedical Sciences, Coimbatore has been edited for English language appropriateness.

Name : MRS. DAISY PAUL

Designation : HEADMISTRESS

Name of the institution : SPIC NAGAR HIGHER SECONDARY SCHOOL,
TUTICORIN.

Signature : Daisy Paul
29/12/13

DAISY PAUL
Headmistress
SPIC Nagar Hr. Sec. School,
SPIC Nagar, Muthiahpuram Post,
TUTICORIN - 628 005.
Phone : 0461 - 2355066

ANNEXURE - I

Paired 't' test

To test the hypothesis, 't' test was applied to find out the significant difference between the same group, either the experimental or control group before and after the Application of Reflex zone stimulation.

$$t = \frac{\bar{d}}{\frac{SD}{\sqrt{n}}}$$

$$SD = \sqrt{\frac{\sum (d - \bar{d})^2}{n}}$$

\bar{d} = Mean of difference between pre-test and post- test score

SD = Standard deviation of the pre-test and post- test score

n = Number of samples

ANNEXURE – II

Unpaired ‘t’ test

To test the hypothesis, ‘t’ test was applied to find out the significant difference between the scores among the experimental and the control group after Application of Reflex zone stimulation.

Unpaired ‘t’ test

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s} \sqrt{\frac{n_1 n_2}{n_1 + n_2}}$$

$$SD = \sqrt{\frac{\sum (x_1 - \bar{x}_1)^2 + \sum (x_2 - \bar{x}_2)^2}{n_1 + n_2}}$$

Where, \bar{X}_1 = mean of the experimental group post test

\bar{X}_2 = mean of the control group post test

n_1 = number of samples in experimental group

n_2 = number of samples in control group